

A Method Of Establishing Stress Relieving Procedures For Minimizing Sulfide Stress Cracking In Cold Worked Metals

Abstract

A method for establishing and evaluating the effectiveness of a stress relieving process in which a cold worked metal is exposed to elevated temperatures for specified times (stress relieved) to restore the metal to its resistance to sulfide stress cracking (SSC) existing before being cold worked. The process is established and evaluated by examining the "dislocation density" of the metal before the cold working and after the stress relieving process. The dislocation density is the accumulation of stress/imperfections in the metal crystal lattice of the metal. A relationship of temperature and time of exposure for the stress relieving process is established that produces a desired dislocation density in the cold worked metal composition. The dislocation density is used to predict the resistance of the stress relieved metal to SSC.